




Hamilton

**CITY OF HAMILTON**  
**OFFICE OF THE CITY AUDITOR**

<b>TO:</b>	Chair and Members Audit, Finance and Administration Committee
<b>COMMITTEE DATE:</b>	January 19, 2023
<b>SUBJECT/REPORT NO:</b>	Water Meter Program Audit and Water Billing Service Transition Project (AUD23002) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Jacqui De Jesus CPA (905) 546-2424 Ext. 3830  Brigitte Minard CPA, CA, CIA, CGAP (905) 546-2424 Ext. 3107  BDO Canada LLP
<b>SUBMITTED BY:</b>	Charles Brown CPA, CA City Auditor Office of the City Auditor
<b>SIGNATURE:</b>	

**RECOMMENDATION**

- (a) That Report AUD23002, and Appendices "A" and "C" to Report AUD23002, respecting the Water Meter Program Audit be received;
- (b) That the Management Responses, as detailed in Appendix "B" to Report AUD23002 be approved;
- (c) That the General Manager of Public Works be directed to implement the Management Responses and report back to the Audit, Finance and Administration Committee by July 2023 on the nature and status of actions taken in response to the audit report; and
- (d) That the General Manager of Public Works, in conjunction with the General Manager of Finance and Corporate Services, be directed to conduct a fulsome risk assessment for the Water Billing Service Transition Project.

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

## **EXECUTIVE SUMMARY**

Since 2019, the City's Water Meter Program (the "Program") experienced large billing discrepancies for a total of under \$2M in billing adjustments, warranting a third-party audit of the Program to assess its strengths and weaknesses, and to benchmark the Program's efficiency and effectiveness against comparable municipalities. BDO Canada LLP ("BDO") was engaged by the Office of the City Auditor to conduct the audit. The audit report is Appendix "A" to Report AUD23002.

Alectra Utilities Corporation ("Alectra"), whom the City has relied upon to provide water billing and reporting services on its behalf since 2001, announced that it will discontinue these services effective December 2024. The City collaborated with other impacted municipalities to explore future-state water billing solutions, and have engaged Kaihen Inc., an external consultant, to provide support and advice through the transition. As at September 2022, Kaihen has recommended that the City adapt a hybrid model, where back office functions would be maintained in-house and the rest will be outsourced to various vendors. Since this undertaking poses significant implications to the City, the Office of the City Auditor deemed it appropriate to identify the most critical risks relating to the project for Council's consideration. These risks, and its potential impacts to the City, are described below.

### **Alternatives for Consideration – Not Applicable**

## **FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

**Financial:** None.

**Staffing:** Appendix "A" to Report AUD23002 contains various recommendations relating to staffing. This includes performing job evaluation reviews of key administrative and supervisory roles within the Program (including job descriptions and compensation levels), as well as assigning a dedicated contract manager to oversee vendor performance.

**Legal:** None.

## **HISTORICAL BACKGROUND**

Hamilton Water is responsible for the City's Water Meter Program, which includes the installation, testing, monitoring, repairing and replacing of approximately 156,000 water meters. The City relies on the revenue from these meters to support its Rate Budget and accounts for approximately \$240M in annual revenue.

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The City has contracted Alectra to provide water account management, meter reading, customer service, reporting and billing services on its behalf since December 2001.

### **Water Meter Program Audit**

Since 2019 there had been several significant events that seem to have impacted the Program's effectiveness, resulting in at least 5 major billing adjustments over \$100K each for a total of under \$2M in billing adjustments. This included high turnover in management and staff positions within the Program, and Alectra's adoption of a new billing management system that resulted in reporting changes, delays in data transfers to/from the City, and negative impacts on data accuracy. Therefore, after receiving a request for an audit from Hamilton Water, the OCA decided to conduct an independent audit to assess the strengths and weaknesses of the Program, and to benchmark the Program's efficiency and effectiveness against industry best practices to identify opportunities for improvement. The results of the Water Meter Program Audit (AUD23002) are presented in Appendix "A", and recommendations and management responses are presented in Appendix "B".

### **The Water Billing Service Transition Project**

On August 6, 2021, the City was notified that Alectra will be discontinuing its water billing services but will uphold the current Water Billing Services Agreement ("Service Agreement") until it expires on December 31, 2024.

The Cities of Guelph, Markham and Vaughan are currently receiving water billing services from Alectra under various arrangements and were also impacted by Alectra's decision to discontinue these services. As such, the City, along with these municipalities (the "Municipality Working Group"), are now working together with the intent of engaging in joint procurements where possible as they assess future-state water billing service options, to take advantage of any opportunities for economies of scale.

As communicated and approved in Report FCS21082(a), the Municipality Working Group have collectively engaged Kaihen Inc., an external consultant, to provide support and advice throughout the water billing transition project (the "Project").

The Project was divided into multiple phases, with the objective of each phase as follows:

#### **Phase 1**

- Assessment of each municipality's current systems and processes
- Analysis of water billing service options. The options considered were:
  - o Take the water billing solution in-house
  - o Establish a hybrid model of in-house and outsourced solutions
  - o Procure one external service provider for a complete water billing solution (i.e. replace Alectra with another vendor)

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- A recommendation for a path forward

**Phase 2A**

- Evaluation and selection of vendor solutions for the customer information system
- Development of a Transition Agreement with Alectra
- Development of high-level strategy and plans on how to implement the full water billing solution (the “Target Operating Model”), including a proposed organizational structure, communication and resource plans, etc.

**Phase 2B**

- Evaluation and selection of vendor solutions for the customer portal, call centre, meter reading and bill print services

**Phase 3**

- Implementation of the full water billing solution

Phase 1 was completed in September 2022 and Kaihen recommended that a hybrid model be adopted by the City, which means that back office functions such as billing and collection will be taken in-house, and the rest (i.e. Customer Information System, Customer Portal, Call Centre, Meter Reading and Bill Print services) will be outsourced to multiple vendors.

Phase 2 began in November 2022, with the request for proposals expected to be released by January 2023 and the procurement process wrapped up by June 2023. Implementation will immediately follow and is expected to be completed by November 2024. As at the latest update provided to the General Issues Committee (FCS21082(b)), the City has budgeted \$10M (\$5M in 2023 and \$5M in 2024) to implement the new water billing solution.

The \$5M for 2023 was approved by Council on December 7, 2022, via GIC Report 22-021 - 2023 Recommended Water, Wastewater and Stormwater Rate Supported Capital Budget. The Project is funded equally from the Waterworks Capital reserve (108015) and the Sanitary Sewer Capital reserve (108005). The 2024 portion will be considered as part of the 2024 budget deliberations.

**POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

None.

## **RELEVANT CONSULTATION**

Appendix “B” to Report AUD23002 includes management responses which were provided by the Hamilton Water Division in the Public Works Department.

Staff in the Financial Planning, Administration and Policy Division were also consulted.

## **ANALYSIS AND RATIONALE FOR RECOMMENDATION**

### **Water Meter Program Audit**

BDO conducted the audit on behalf of the OCA, which sought to assess the strengths and weaknesses of the Program, and to benchmark the Program’s efficiency and effectiveness against industry best practices to identify opportunities for improvement. The OCA maintained oversight of BDO to ensure the deliverables matched the project scope and objectives, and were of sufficient quality.

The audit report prepared by BDO (Appendix “A” to Report AUD23002) contains the findings and recommendations relating to the above objectives. Nine recommendations were made. Management agreed with eight of the nine recommendations and disagreed with one recommendation. It is the OCA’s opinion that the recommendation that was disagreed with should have action taken by management to address the audit observations. Implementation of the management responses is estimated to be completed through 2023 to 2025.

### **The Water Billing Service Transition Project**

#### **Risk Assessment Needs to be Completed**

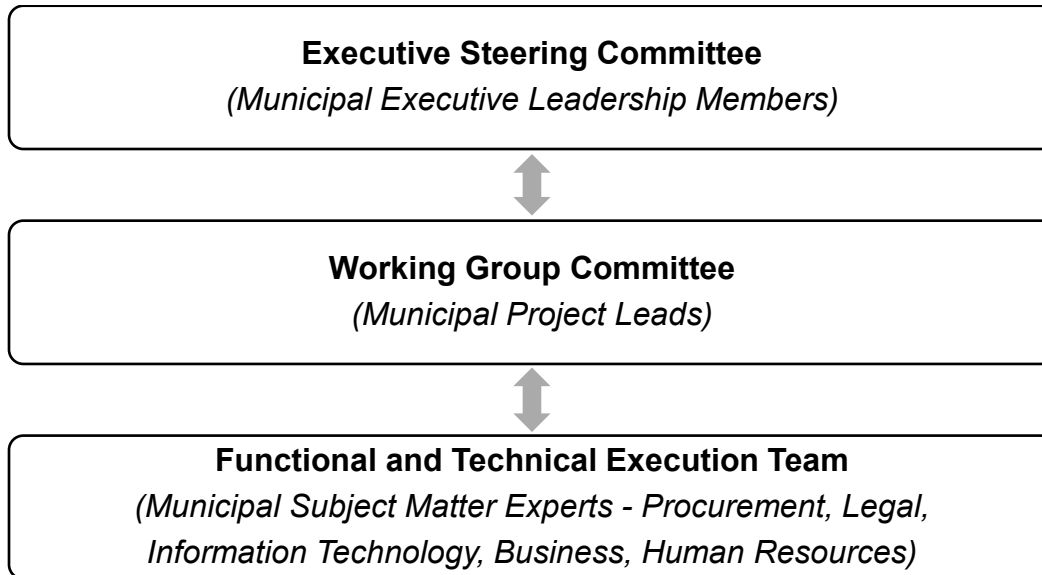
Given that the path being pursued is a hybrid model which necessitates the establishment of new functions, technologies, and processes, as well as multiple outsourced services, the Project will have significant impacts to the City’s organizational structure and resources for the next two years.

A fulsome risk assessment should be performed by the City to ensure that project objectives are understood, significant risks are identified, plans are implemented to manage the risks, action is taken to prevent or manage any adverse impacts to the City’s operations throughout the Project’s duration, and after the full solution is implemented. The Office of the City Auditor recommends that the risk management process outlined in Appendix “C” be used to perform the risk assessment.

The Office of the City Auditor identified some of these significant risks below, to aid in this regard, and to bring these matters to Council’s attention.

**Governance / Project Management Risks**

The governance model recommended by Kaihen to the Municipality Working Group is structured as follows:



All levels include the team members from Kaihen as well and based on our discussions with City staff, it is our understanding that Kaihen is acting as the manager for the entire Project.

As the name suggests, “Steering Committees” are meant to “steer” a project end-to-end, providing advice, direction and oversight to ensure that the project’s intended outcomes are achieved. However, we found that the “Steering Committee” within Hamilton was informally established and is currently comprised of 3 individuals from Finance. Hamilton Water is being consulted with respect to the procurement for the Meter Reading component but is not part of this Committee despite being the Program owner.

While Procurement is being consulted as part of Phase 2, there are no representatives from Legal or Human Resources, and per our fact finding, these groups are not actively providing support for the Project. Although subject matter experts (i.e. Information Technology and Business support staff) who can provide an understanding of the City’s business and technical requirements relating to utility billing are providing input as part of the functional team, these groups do not have representation in the Committee.

Furthermore, there is no dedicated Project Lead tasked with the responsibility of contract management. That is, to oversee Kaihen’s performance and to ensure that all deliverables are successfully completed according to the terms of the contract and to

enforce the City's contractual rights. The current Project Lead is a Senior Policy Advisor in the Financial Planning, Administration and Policy Division who has taken on this responsibility along with other critical commitments such as the oversight and management of the City's current contract with Alectra. Weak contract management has been one of the most common audit findings we have identified in our audits in the past 12-18 months.

Project charters that formally outline project objectives, scope, deliverables/milestones, stakeholders, budget, risks, authorities and timelines was also not prepared by the City nor Kaihen for Phases 2 and 3. Project charters are a critical tool for project management as it promotes a shared understanding amongst all stakeholders regarding roles, responsibilities and expectations, allowing the Project Lead to mobilize the necessary resources to meet the intended project outcomes.

The City will likely be heavily reliant on Kaihen to plan and implement this transition, without placing personnel with the requisite knowledge of the City's requirements and processes at its helm. At the same time, having no project charter for the most critical phases can make it difficult to manage expectations from all stakeholders, and makes the Project prone to scope deviations. There is a risk that these can lead to poorly assessed requirements at the outset, timeline delays and/or weak oversight, which in turn could result in cost overruns as the Project progresses forward.

### **Financial Risks**

Kaihen's fees for its services amounts to \$123,750 for Phase 1 and \$186,250 for Phase 2A. Based on the terms of the contract, each phase of the Project is time-boxed, and any delays from these deadlines requires a change request. While the first phase was completed on time, the next two phases (i.e. public vendor procurements and system implementation) typically can be prone to delays, which may potentially increase these consulting costs.

The budgeted cost for the implementation of the new water billing solution is \$10M in total, where \$5M will be allocated in 2023 and \$5M in 2024. Following Kaihen's recommendations, implementation involves establishing a hybrid water billing solution, whereby a cloud-hosted Customer Information System and Customer Portal will be obtained, Call Centre, Meter Reading and Bill Print functions will be outsourced, and back-office functions will be brought in-house. The latter will involve hiring and retaining new staff, along with a possible re-structuring of the Hamilton Water function. Once these steps are completed, the City would need to ensure that all of these components are then integrated with each other seamlessly. It is our opinion that this Project is complex and if not carefully managed, these costs could easily exceed this \$10M initial budget.

Lastly, Kaihen estimates that the cost of the hybrid solution once implemented is 10-15% higher than the current contract with Alectra. It should be noted that in 2022 the

cost for Alectra's services were \$5.8M and the proposed budget in 2023 is \$6M. However, these costs are mere estimates and are completely dependent on the assumptions made when the Project was planned, and whether the implementation runs smoothly according to the original scope and timelines. This figure could also increase if there are deviations from any of these elements.

Ultimately, if the Project is delayed beyond 2024 there is a risk of significant cost overruns as this would entail extending the contract with Alectra (if the vendor allows it), while at the same time expending additional resources to operationalize the new system.

### **Contract Management Risks**

The results of the Water Meter Program Audit demonstrated that Alectra has previously taken actions that were either against the Service Agreement's terms or the interests of the City. For example, Alectra switched billing systems without notifying the City, and in the process improperly migrated the City's historical consumption data which ultimately contributed to the large billing discrepancies in 2021-22. Another example is that Alectra did not consistently provide required reporting per the Service Agreement. However, a Transition Agreement between the City and Alectra, outlining both parties' roles and responsibilities during the duration of the Project, is currently being developed in collaboration with Kaihen with a projected completion date of June 2023. Until this Transition Agreement is executed, there is a risk that the City may not be able to hold Alectra accountable to protect the integrity of its information given its history of non-compliance and making unilateral decisions.

Maintaining the integrity of historical consumption and customer data is critical to the success of the Project. If data being migrated is incomplete, or if the data quality is compromised, end users will have difficulties working with the information in the new system.

Also, if Legal does not actively provide support when drafting the Transition Agreement as well as the Service Agreements with the new vendors, there is a risk of repeating the issues faced by the Program relating to its oversight of Alectra's performance.

### **Information Technology Risks**

While using cloud-based software for the Customer Information System and Customer Portal can bring many benefits, there is also a risk of data loss, leakage or unavailability due to cyber threats which can result in business disruption and reputational damage (due to customer complaints). The City will need to ensure that the confidentiality, integrity, and availability of consumer data is well protected through the implementation, testing and go-live steps the Customer Information System and Customer Portal.



Once all new systems and structures are operational the City will also need to find ways to automate the processing, transfer and validation of key data between them, while ensuring that data integrity is preserved. One of the observations from the Water Meter Audit was that data transfer and reporting between the City and its two contractors (i.e. Alectra and Neptune) were manually processed by Hamilton Water staff, resulting in inefficiencies. It also impacts the reliability of the data as manual processes are highly susceptible to human error, which can lead to erroneous billings. While it is currently unknown how many vendors will be procured to provide the Call Centre, Meter Reading and Bill Print services, between these services, the cloud-hosted software and the back-office functions, the number of stakeholders in the new water billing model is substantially more than the previous structure. If automated integrations are not embedded into this transition, this may have significant negative consequences for the Program and service delivery to residents.

### **Staffing Risks**

If the key staff involved in the Project leave their current role and/or the organization due to unforeseen circumstances, there is a risk that all the knowledge and/or skills accumulated as part of managing the Project will be lost. Considering this Project has a 24-month timeline from vendor procurement to execution, the realization of this risk can pose a significant threat to completing this Project by that deadline.

Furthermore, during system implementations there is usually a period where both the new system and legacy system are running concurrently to ensure that all data is transferred properly. If the current retention issues within Hamilton Water are not addressed, having less staff who are knowledgeable about the legacy processes and systems can lead to Project delays as well.

There is also a risk of poor knowledge transfer from Kaihen to the City. Currently Kaihen is the Project Manager and is holding majority of the technical expertise required to run this transition end-to-end. If subject matter experts and end users from the City are not extensively involved in this Project from the outset, the City could continually be dependent on external vendors to maintain systems and configure future customizations, upgrades and program changes as needed.

Lastly, the establishment of back-office functions means that the City will need to hire, train and retain new staff and/or re-assign current staff that have overlap in skills required to run these new functions. If there is no staffing strategy put in place, including communications with any impacted departments, developing these new functions may be difficult and will pose severe disruptions for residents.

### **Organizational & Cultural Risk**

Since this Project involves a major system changeover for one of the City's most crucial services, ensuring the commitment of the right resources should be the bare minimum

to achieve reasonable success and minimal disruption to residents. It would also be reasonable to expect the City to be more prudent with its approach to the Project, given it already witnessed the consequences when the billing system migration by Alectra went awry. Additionally, given that the expiry of the current contract with Alectra and target completion date for the Project is one month apart, the City realistically has little leeway for scope changes and project delays if it wants to avoid cost overruns. As the City is already facing budgetary constraints, managing the Project closely should be top priority for the City to prevent this risk from being realized.

Nevertheless, we found that there are potentially insufficient resources being put towards this Project, with unclear strategies that may put timeline achievement at risk. The current project structure also suggests a potential cultural/systemic issue in the City, where roles and responsibilities are not clearly understood, and accountabilities could be clearer.

## **ALTERNATIVES FOR CONSIDERATION**

Not applicable.

## **ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

### **Built Environment and Infrastructure**

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

### **Our People and Performance**

Hamiltonians have a high level of trust and confidence in their City government.

## **APPENDICES AND SCHEDULES ATTACHED**

Appendix “A” to Report AUD23002 – Audit of Hamilton Water Meter Program

Appendix “B” to Report AUD23002 – Recommendations and Management Responses

Appendix “C” to Report AUD23002 – Risk Management Process